UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET SW SUITE 23T85
ATLANTA, GEORGIA 30303-8931

May 5, 2003

Duke Energy Corporation
ATTN: Mr. R. A. Jones
Site Vice President
Oconee Nuclear Station
7800 Rochester Highway
Seneca, SC 29672

SUBJECT: OCONEE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT 50-269/03-02, 50-270/03-02, AND 50-287/03-02

Dear Mr. Jones:

On April 5, 2003, the NRC completed an inspection at your Oconee Nuclear Station. The enclosed report documents the inspection findings which were discussed on April 2, 2003, with you and other members of your staff.

The inspection examined activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your licenses. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, there was one NRC-identified finding of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it has been entered into your corrective action program, the NRC is treating this issue as a non-cited violation (NCV), in accordance with Section VI.A.1 of the NRC's Enforcement Policy. Additionally, two licensee-identified NCVs are listed in Section 4OA7 of this report. If you contest any of the NCVs in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the United States Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Oconee facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system

(ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Robert Haag, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos.: 50-269, 50-270, 50-287
License Nos.: DPR-38, DPR-47, DPR-55

Enclosure: NRC Integrated Inspection Report 50-269/03-02, 50-270/03-02, and 50-287/03-02 w/Attachment - Supplement Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos:	50-269, 50-270, 50-287
License Nos:	DPR-38, DPR-47, DPR-55
Report No:	50-269/03-02, 50-270/03-02, 50-287/03-02
Licensee:	Duke Energy Corporation
Facility:	Oconee Nuclear Station, Units 1, 2, and 3
Location:	7800 Rochester Highway Seneca, SC 29672
Dates:	January 5, 2003 - April 5, 2003
Inspectors:	M. Shannon, Senior Resident Inspector G. Hutto, Resident Inspector E. Riggs, Resident Inspector R. Aiello, Senior Operations Engineer (Section 1R11.2) R. Cortes, Nuclear Safety Intern (Sections 4OA3.3 and .4) G. Hopper, Senior Operations Engineer (Section 1R11.2) G. Kuzo, Senior Radiation Specialist (Sections 2OS3 and 2PS3)
Approved by:	Robert Haag, Chief Reactor Projects Branch 1 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000269/03-02, IR 05000270/03-02, IR 05000287/03-02; Duke Energy Corporation; 01/05/2003 - 04/05/2003; Oconee Nuclear Station; Fire Protection.

The inspection was conducted by the resident Inspectors and four regional based inspectors: One senior radiation specialist; two senior operations engineers; and one nuclear safety intern. The inspector identified one Green finding, which was identified as a non-cited violation (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The licensee failed to adequately implement their procedure for control of combustible and flammable material for 36 non-flame retardant wooden crates stored in the vicinity of the Keowee Hydro Unit (KHU) switch gear.

  A non-cited violation of Paragraph 3.D of the Oconee Operating License was identified for failure to implement and maintain all provisions of the approved fire protection plan which includes Nuclear System Directive (NSD) 313, Control of Flammable and Combustible Material. The temporary storage of wooden crates at the KHU complex was not evaluated and approved by the fire protection engineer as required by NSD 313. Subsequent evaluation determined increase in fire loading necessitated a fire watch tour be performed every six hours. This issue was determined to be of very low safety significance (Green) as it did not result in the impairment or degradation of fire protection features or defense in depth for safe shutdown. (Section 1R05)

B. Licensee Identified Violations

Two violations of very low safety significance, which were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations are listed in Section 4OA7.

Report Details

Summary of Plant Status:

Unit 1 operated at 100 percent rated thermal power (RTP) during the inspection period except for one power reduction. The unit was reduced to 17 percent RTP on March 29, 2003, to perform inspections of the reactor coolant system for signs of leakage. Following the inspections, the unit was returned to 100 percent RTP on March 30, 2003.

Unit 2 operated at or near 100 percent RTP during the entire inspection period.

Unit 3 operated at 100 percent RTP until March 22, 2003, at which time an end of core life coastdown commenced. Reactor power was at 93 percent RTP at the end of the report period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

.1 Cold Weather Condition

a. Inspection Scope

The inspectors walked down cold weather protection features related to the protection of the borated water storage tanks (BWSTs) during a period of cold weather (< 15F) that occurred on January 29, 2003. The inspectors observed the freeze protection circuit panels associated with the Units 1, 2, and 3 BWSTs to determine that the circuits were functioning properly with no circuits in the trip position. The inspectors also utilized an infrared temperature measuring instrument to verify that external insulation surface for the BWST level instrument piping and emergency core cooling system (ECCS) piping read above ambient temperatures as a quantitative measure that the freeze protection circuits were performing their function. The inspectors also reviewed IP/0/A/1606/009, Preventive Maintenance and Operational Check of Freeze Protection, and associated completed work orders to verify that the appropriate maintenance checks of freeze protection circuits, instrument enclosures, and insulation had been performed prior to the onset cold weather.

b. Findings

No findings of significance were identified

.2 Tornado Watch

a. Inspection Scope

The inspectors verified that the licensee responded appropriately to a tornado watch issued for the Oconee Nuclear Station area on February 22, 2003. The inspectors verified that operations personnel entered abnormal procedure (AP) 0/A/1700/006,

Natural Disaster, and that there were no ongoing maintenance activities on systems that required restoration by the procedure. The inspectors also verified that all control rooms operations personnel had reviewed Enclosure 5.1, Tornado Information, as required by the AP.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

Partial Walkdown

a. Inspection Scope

The inspectors conducted partial equipment alignment walkdowns to evaluate the operability of selected redundant trains or backup systems while the other train or system was inoperable or out of service. The walkdowns included, as appropriate, reviews of plant procedures and other documents to determine correct system lineups, and verification of critical components to identify any discrepancies which could affect operability of the redundant train or backup system. The following systems were included in this review:

- Standby Shutdown Facility (SSF) while Keowee Unit 2 and the overhead power path were out-of-service (OOS) for scheduled maintenance and testing
- Keowee Unit 2 and underground power path while Keowee Unit 1 and overhead power path and yellow bus were OOS for maintenance
- Unit 2 train B low pressure injection (LPI) while the A train LPI was OOS for maintenance

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors conducted tours in eleven areas of the plant to verify that combustibles and ignition sources were properly controlled, and that fire detection and suppression capabilities were intact. The inspectors selected the areas based on a review of the licensee's safe shutdown analysis and the probabilistic risk assessment based sensitivity studies for fire related core damage sequences. Inspection of the following areas were conducted during this inspection period.

- Unit 3 East and West Penetration Rooms
- Units 1, 2, and 3 Battery Rooms
- Units 1, 2, and 3 Equipment Rooms
- Unit 2 Cable Spread Room
- Keowee Hydro Units

b. Findings

Introduction: A Green NCV of Paragraph 3.D of the Oconee Operating License was identified for the failure to adequately control combustible and flammable material, stored in the vicinity of the KHU switch gear.

Description: On March 26, 2003, during a fire protection walkdown, the inspectors noted that thirty-six control rod drive mechanisms (CRDMs) had been stored on the operating level of the KHU complex. These CRDMs were new replacement CRDMs and were contained in non-fire retardant wooden crates approximately 25 feet long. NSD 313, Control of Combustible and Flammable Material, requires that only fire retardant treated wood be used within power production and safe shutdown areas unless approved by the fire protection engineer. The inspectors brought this observation to the attention of the alternate fire protection engineer and it was determined that an evaluation of this material had not been made by the fire protection engineer and no compensatory measures had been in place. The fire protection engineer subsequently evaluated the fire loading and determined that a fire watch tour was required to be performed every six hours as a compensatory measure.

Analysis: This deficiency had a credible impact on safety as the increased combustible loading in the KHU complex increased the potential for a fire that could have had an impact on the operability of both KHUs as the switch gear and exciter cabinets for the units were located in the same area as the wood crates. The inspectors utilized the Fire Protection significance determination process (SDP) and performed a Phase I screening to determine the risk significance of the wood storage. This issue was determined to be of very low safety significance (Green), as it did not result in the impairment or degradation of fire protection features or defense in depth for safe shutdown.

Enforcement: Paragraph 3.D of the Oconee Operating License requires the licensee to implement and maintain all provisions of the approved fire protection plan which includes NSD 313. Contrary to the above, NSD 313 was not adequately implemented resulting in the non-approved storage of non-fire retardant treated wood in the KHU complex. Because the failure to adequately implement this procedure is of very low safety significance and has been entered into the corrective action program (problem investigation process (PIP) O-03-01695), this violation is being treated as a NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. It will be identified as NCV 50-269,270,287/03-02-01: Failure to Evaluate Combustible Material in the KHU Complex.

1R11 Licensed Operator Requalification

.1 Simulator Scenarios

a. Inspection Scope

The inspectors observed Licensed Operator Requalification training activities conducted on March 19, 2003, which included simulator scenarios. The training scenarios observed involved a reactor trip with loss of all feedwater and subsequent small break loss of coolant accident with a loss of high pressure injection (HPI). The inspectors assessed licensed operator performance during the evolution to verify that the crew correctly diagnosed abnormal conditions and that the appropriate emergency operating procedures were used when necessary. The inspectors observed the effectiveness of crew communications; the ability to take timely and proper actions; prioritizing, interpreting, and verifying alarms; timely control board operation and manipulation, including high-risk operator actions; and oversight and direction provided by the shift supervisor, including the ability to identify and implement appropriate Technical Specifications (TS) actions. The inspectors also reviewed post training critique documentation to verify that operator crew weaknesses and deficiencies were identified by the simulator controllers/evaluators during the training exercise.

b. Findings

No findings of significance were identified.

.2 Implementation of Operator Requalification Guidelines

a. Inspection Scope

During the week of March 24, 2003, the inspectors reviewed documentation, interviewed licensee personnel, and observed the administration of simulator operating tests associated with the licensee's operator requalification program. Each of the activities performed by the inspectors was done to assess the effectiveness of the licensee in implementing requalification requirements identified in 10 CFR 55, "Operators' Licenses." The evaluations were also performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," and Inspection Procedure 71111.11, "Licensed Operator Requalification Program." The inspectors also reviewed and evaluated the licensee's simulation facility for adequacy for use in operator licensing examinations. The inspectors observed two operator crews and one staff crew during the performance of the operating tests. Documentation reviewed included written examinations, Job Performance Measures (JPMs), simulator scenarios, licensee procedures, on-shift records, licensed operator qualification records, watchstanding records, simulator modification request records and performance test records, and medical records. Licensee documents reviewed during the inspection are listed in the Attachment to this inspection report.

b. Findings

The inspectors identified that the licensee did not reactivate reactor operator (RO)/ senior reactor operator (SRO) licenses in accordance with licensee's Operation Management Procedure (OMP) 1-12, which implements the regulatory requirements of 10 CFR 55.53(f). The inspectors also identified that several records contained potentially inaccurate and incomplete information. This is an unresolved item (URI) pending review of additional circumstances and completion of the SDP.

The inspectors reviewed ten operator license reactivation records (OMP 1-12, Attachment B). Reactivation requirements stated in 10 CFR 55.53 requires that an operator must stand a minimum of 40 hours of shift functions under the direction of an operator or senior operator and in the position to which the individual will be assigned. The 40 hours of reactivation must have included a complete tour of the plant. Procedure OMP 1-12 implements this requirement and states in section 5.4.4 that;

> The licensed operator shall complete a minimum of 48 hours in parallel with a licensed operator in the position to which the operator is to be assigned per OMP 2-01, "Duties and Responsibilities for On-Shift Operations Personnel," including shift turnovers. Up to 8 hours of the 48 hours of parallel operations may be used to complete the plant familiarization and tours. The plant tours shall include observing Primary, Secondary, and Outside/SSF operator rounds on all units. A complete plant tour shall be conducted with an appropriate licensed SRO or RO.

The inspectors compared the information contained on the reactivation records with vital area computer access records to verify the plant tours were performed as indicated. Several records had questionable completion dates or no dates indicated at all. One operator completed the requirements of OMP 1-12 as written. Two operators were low on "in-plant" tour times but met the requirements of the procedure. Seven of the ten operators did not complete the plant tours or the tours were partially completed outside of their scheduled reactivation period.

The inspectors identified that three operators had not met the requirements of 10 CFR 55.53(f) for reactivation and had not met the conditions of their license. Two of the three possessed an active license at the time of the inspection. The licensee, took prompt action and declared the two operators inactive and placed the operators names in the license maintenance book until the issue was resolved. The licensee determined that one of the operators completed an equivalent in- plant tour outside of his 48 hours of parallel operation, but prior to the Shift Operations Manager signing his certification. After this was determined, he was placed back on active status. One individual's "in-plant" tour record was inappropriately designated Not Applicable (N/A). One operator failed to conduct a complete in-plant tour during his reactivation period. Security records indicated that his in-plant tour consisted of just under seven hours inside the Standby Shutdown Facility (SSF) only. The licensee initiated a Problem Investigation Process (PIP) # 0-03-01668 to determine root cause and corrective measures. Pending review of additional circumstances and SDP review, this issue is identified as URI 50-269,270,287/03-02-02: Licensee did not reactivate RO/SRO licenses in accordance with OMP 1-12.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the licensee's effectiveness in performing routine maintenance activities. This review included an assessment of the licensee's practices pertaining to the identification, scoping, and handling of degraded equipment conditions as well as common cause failure evaluations. For each item selected the inspectors performed a detailed review of the problem history and surrounding circumstances, evaluated the extent of condition reviews as required, and reviewed the generic implications of the equipment and/or work practice problem. For those systems, structures, and components (SSCs) scoped in the maintenance rule per 10 CFR 50.65, the inspectors verified that reliability and unavailability were properly monitored and that 10 CFR 50.65 (a)(1) and (a)(2) classifications were justified in light of the reviewed degraded equipment condition. The inspectors reviewed the following items:

- PIP O-03-01155, SSF diesel tripped from full load on high vibration during monthly PM
- PIP O-02-05306, Water in Unit 1 and Unit 2 turbine driven emergency feedwater (EFW) pump oil tank sump

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Evaluations

a. Inspection Scope

The inspectors evaluated, as appropriate for the selected SSCs listed below: (1) the effectiveness of the risk assessments performed before maintenance activities were conducted; (2) the management of risk; (3) that, upon identification of an unforseen situation, necessary steps were taken to plan and control the resulting emergent work activities; and (4) that maintenance risk assessments and emergent work problems were adequately identified and resolved.

- 3A RBS pump testing with 3C LPI flow path isolated
- Unit 1 electric-hydraulic turbine control (EHC) troubleshooting and subsequent plant transient (emergent)
- PIP O-03-00914, Unexpected alarms on the Unit 1 and 2 events recorder summary
- PIP O-03-00983, 1 FDW-315, emergency feedwater throttle valve, inadvertent TS entry

- 1A Motor driven emergency feedwater (MDEFW) pump extended out of service with 1B HPI and 1B MDEFW maintenance scheduled

- AMSAC emergent work with turbine driven emergency feedwater (TDEFW) pump scheduled maintenance

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions

a. Inspection Scope

The inspectors reviewed, the operating crew's performance during selected non-routine events and/or transient operations to determine if the response was appropriate to the event. As appropriate, the inspectors: (1) reviewed operator logs, plant computer data, or strip charts to determine what occurred and how the operators responded; (2) determined if operator responses were in accordance with the response required by procedures and training; (3) evaluated the occurrence and subsequent personnel response using the SDP; and (4) confirmed that personnel performance deficiencies were captured in the licensee's corrective action program. The non-routine evolution reviewed during this inspection period included the following:

- EHC troubleshooting resulting in plant transient (PIP O-03-00617)

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

Quarterly Operability Evaluations

a. Inspection Scope

The inspectors reviewed selected operability evaluations affecting risk significant mitigating systems, to assess, as appropriate: (1) the technical adequacy of the evaluations; (2) whether continued system operability was warranted; (3) whether other existing degraded conditions were considered; (4) if compensatory measures were involved, whether the compensatory measures were in place, would work as intended, and were appropriately controlled; and (5) where continued operability was considered unjustified, the impact on TS Limited Condition Operations. The inspectors reviewed the following items for operability evaluations:

- PIP O-02-07368, Missed Keowee Hydro Unit TS surveillance's
- PIP O-03-00087, Units 1 and 3 pipe supports for LPI, HPI and spent fuel cooling not meeting design requirements
- PIP O-03-00538, Operations procedural changes to minimize water in TDEFW oil
- PIP O-03-00949, High pressure service water (HPSW) air entrainment in HPSW pump suction
- PIP O-03-00960, EFW automatic re-circulation (ARC) valve operation under degraded frequency conditions

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (PMT)

a. Inspection Scope

The inspectors reviewed PMT procedures and/or test activities, as appropriate, for selected risk significant mitigating systems to assess whether: (1) the affect of testing on the plant had been adequately addressed by control room and/or engineering personnel; (2) testing was adequate for the maintenance performed; (3) acceptance criteria were clear and adequately demonstrated operational readiness consistent with design and licensing basis documents; (4) test instrumentation had current calibrations, range, and accuracy consistent with the application; (5) tests were performed as written with applicable prerequisites satisfied; (6) jumpers installed or leads lifted were properly controlled; (7) test equipment was removed following testing; and (8) equipment was returned to the status required to perform its safety function. The inspectors observed testing and/or reviewed the results of the following tests:

- OP/3/A/1104/002 A, HPI Pump Maintenance and Testing, following breaker replacement
- PT/0/A/0600/21, Standby Shutdown Facility Diesel - Generator Operation, following maintenance PMs
- PT/2/A/0204/007, RBS Pump Test, 2A RBS pump, following scheduled maintenance
- SSF Diesel Generator vibration monitoring, following troubleshooting for high vibration trip actuation
- PT/1/A/0204/07A, RBS Pump Test, 1A RBS pump following scheduled maintenance

- PT/1/A/006 A, LPI Pump Test - Recirculation, 1C LPI pump following scheduled maintenance

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors witnessed surveillance tests and/or reviewed test data of the selected risk-significant SSCs listed below, to assess, as appropriate, whether the SSCs met TS, Updated Final Safety Analysis Report, and licensee procedure requirements. In addition, the inspectors determined if the testing effectively demonstrated that the SSCs were ready and capable of performing their intended safety functions.

- Unit 1 TDEFW Oil Sample and Analysis
- PT/3/A/0202/011, HPI Pump Test
- HP-27 Stroke Test, PIP 03-00626
- PT/1/A/006 A, LPI Pump Test - Recirculation, 1A LPI pump
- PT/1/A/006 A, LPI Pump Test - Recirculation, 1B LPI pump
- PT/3/0204/07A, RBS Pump Test, 3A RBS pump

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety (OS) and Public Radiation Safety

2OS3 Radiation Monitoring Instrumentation and Protective Equipment

Portable Survey Instrumentation

a. Inspection Scope

Current program guidance, including calibration and operation procedures, and its implementation to maintain operability, accuracy, and availability of selected portable survey instruments were reviewed and evaluated at the Duke Power Company's Central Calibration Facility (CCF). During the week of January 6, 2003, the inspectors reviewed current quality control and calibration data for selected calibration and personnel survey instruments, and assessed operability of various portable survey instruments ready for

shipment to licensee facilities. Responsible staff's knowledge and proficiency regarding portable survey instrumentation calibration activities were evaluated through interviews, record reviews, and direct observation of calibration activities associated with a Teletector Model 6112B Geiger Counter portable survey instrument (Serial Number 00966) using the Shepard Model 89 Irradiator. Availability of portable instruments for licensee use was evaluated through discussion of the portable instrumentation management program and review of current reports generated for licensee inage and outage usage needs, assigned site instruments, site instruments requiring calibration in less than 45 days, CCF portable instrument status, and instruments ready for shipment. In addition, the inspectors assessed licensee program guidance for portable instruments received from the licensee and found to be out-of-calibration/tolerance.

Laboratory activities and records associated with portable radiation monitoring instrumentation were reviewed against 10 CFR Part 20, and applicable procedures listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

2PS3 Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program

Radiological Environmental Monitoring Program (REMP) Implementation

a. Inspection Scope

During the week of January 6, 2003, analytical laboratory activities conducted at the Duke Power Company (DPC) Environmental Radiation (EnRad) facilities used to conduct quantitative radionuclide analyses for licensee REMP samples were reviewed and evaluated. The inspectors evaluated procedural guidance and its implementation and assessed knowledge and proficiency of responsible staff. In addition, laboratory analysis quality control (QC) activities for sample preparation and for gamma spectroscopy, liquid scintillation counting, and gross beta analysis instrumentation were reviewed and evaluated. The program policy and QC data reviewed and discussed included sample receipt and storage; sample preparation and chain of custody implementation; analytical instrument calibration and performance data; inter-laboratory sample comparison results; and quantitative radionuclide measurement accuracy and Lower Limit of Detection capabilities.

Program guidance and data for the analytical laboratory activities were reviewed against 10 CFR Part 20, and applicable procedures as documented in the Attachment to this report. Laboratory QC activities were evaluated against Regulatory Guide (RG) 1.21, Measuring, Evaluating and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials In Liquid and Gaseous Effluents from Light-Water Cooled Nuclear Power Plant, June 1974; and RG 4.15, Quality Assurance for Radiological Monitoring Programs (Normal Operation) - Effluent Streams and the Environment, December 1977.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed an in-depth review of (two) issues entered into the licensee's corrective action program. The samples selected were within the cornerstone of mitigating systems and involve risk significant systems. The inspectors reviewed the actions taken to determine if the licensee had adequately addressed the following attributes:

- Complete, accurate, and timely identification of the problem
- Evaluation and disposition of operability and reportability issues
- Consideration of previous failures, extent of condition, generic or common cause implications
- Prioritization and resolution of the issue commensurate with the safety significance
- Identification of the root cause and contributing causes of the problem
- Identification and implementation of corrective actions commensurate with the safety significance of the issue

The following issues and corrective actions were reviewed:

- PIPs O-01-03822, O-03-00502, and O-03-01537; Documented power supply deficiencies, spurious alarms and single failure vulnerabilities for the automatic feedwater isolation system
- PIPs O-02-05306, O-03-00538, O-03-01084, and O-03-01392; Documented oil quality, sump level, and sampling/procedural concerns with the TDEFW pumps

b. Findings

No findings of significance were identified.

4OA3 Event Followup

.1 (Closed) Licensee Event Report (LER) 50-287/02-01-00: Moisture Separator Reheater Level Results in Reactor Trip

This LER documented a Unit 3 reactor trip event that occurred on November 14, 2002. The reactor tripped on an anticipatory trip following a main turbine trip that was caused by a high level in the moisture separator reheater (MSRH). The high level in the MSRH was caused by three separate equipment failures which resulted in the isolation of the 3A moisture separator drain tank discharge paths. The main turbine is automatically tripped by a MSRH high level signal to protect the turbine's blades from water-induced damage. The details of this event and the inspectors' review were documented in IR 50-269,270,287/02-05. This LER has been entered into the licensee's corrective action program as PIP O-02-06562. This event did not constitute a violation of NRC requirements.

.2 (Closed) LER 50-270/02-01-00: Technical Specification Valve Manually Inoperable due to Mechanical Interference

This LER documented the October 3, 2002, discovery of a manually inoperable valve, 2LP-9, in the Oconee Unit 2 LPI system. This is a motor operated valve, and is used as one of the LPI pump discharge header crossover isolation valves. Per TS 3.5.3 condition B, 2LP-9 is required to be manually operable (i.e., locally and remotely) to open while in modes 1, 2, and 3. However, the valve was not manually operable locally due to an interference between the valve's newly installed speed handle and a cable tray hanger. The inspectors reviewed the LER using a Phase 1 SDP and determined that the event had very low safety significance (Green), as the valve was remotely operable from the Oconee Unit 2 control room, since the handwheel on the limitorque operator of this valve does not turn (i.e., is not engaged) when the valve is operated electrically. More specifically the valve accident function was maintained as the electrical power supply for the load center that supplies the remote operation of 2LP-9 is automatically powered by two safety busses. The inspectors also verified that the licensee's corrective action to remove the handwheel speed handle was completed. The enforcement aspects of this licensee-identified violation are discussed in Section 4OA7. This LER is closed.

.3 (Closed) LER 50-287/01-01-00: Reactor Vessel Head Leakage due to Stress Corrosion Cracks Found in Nine Control Rod Drive Nozzle Penetrations

This LER was reviewed in Inspection Report 50-287/2001-02 and remained open pending further generic review of circumferential crack initiation. On February 18, 2001, during a unit 3 refueling outage, the licensee identified through-wall leakage on nine reactor vessel head penetrations based on the presence of boric acid deposits on the head at these locations. Two nozzles contained circumferential flaws which had grown through-wall or near through-wall. The leaks were determined to have resulted from Primary Water Stress Corrosion Cracking (PWSCC). The licensee concluded that circumferential flaws would take 3.5 to 10 years to become through-wall cracks after leakage from other flaws subjected the outer diameter to boric acid.

The inspectors identified an inconsistency regarding the estimated crack propagation rate by the licensee's root cause analysis and the lack of visual indication of leakage during the previous outage. The inconsistency would suggest either a larger circumferential crack growth rate or earlier leakage from axial cracks that was not identified visually. In Bulletin 2002-02, Reactor Pressure Vessel Head and Vessel Head Penetration Nozzle Inspection Programs, the NRC expressed concerns with the adequacy of inspection programs that rely on visual examinations of the head penetrations. On February 11, 2003, an Order was issued to require supplemental inspections. Considering that continued industry research in crack growth rate is ongoing, and with the issuance of new inspection requirements, resolution of this inconsistency becomes extraneous.

The short-term corrective action was to repair the reactor head penetrations prior to restart and in the long-term the reactor vessel head will be replaced in May 2003. This finding was dispositioned in Inspection Report No. 50-287/2001-02 by exercising discretion in accordance with section VII.B.6 of the Enforcement Policy. This LER is closed.

.4 (Closed) LER 50-270/01-02-00: Reactor Vessel Head Leakage due to Stress Corrosion Cracks Found in Several Control Rod Drive Nozzle Penetrations

On April 28, 2001, during a unit 2 refueling outage, the licensee identified small accumulations of boric acid deposited at the base of four Control Rod Drive Mechanisms (CRDM). Surface dye-penetrant test (PT) inspections of the weld area and nozzle outside diameter identified several axial cracks on four CRDM nozzles. Technical Specifications limit Reactor Coolant System operational leakage to "No pressure boundary leakage" while in Modes 1 through 4. The licensee determined that the apparent cause of the CRDM nozzle leaks was PWSCC based on comparison of Eddy Current examinations, Ultrasonic tests, and PT inspections.

The short term corrective actions were to repair the nozzles prior to restart, and visual inspection of other susceptible PWSCC alloy 600 nozzle connections which included the pressurizer heater nozzles. Long-term corrective action is the reactor vessel head replacement in Spring 2004. This finding was dispositioned in Inspection Report No. 50-287/2001-02 by exercising discretion in accordance with section VII.B.6 of the Enforcement Policy. This LER is closed.

4OA6 Management Meetings

.1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. Ron Jones, Site Vice President, and other members of licensee management at the conclusion of the inspection on April 2, 2003. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified

.2 Annual Assessment Meeting Summary

On April 3, 2003, the NRC's Regional Administrator, the Chief of Inspection Programs Branch and the Chief of Reactor Projects Branch 1, met with Duke Energy to discuss the NRC's Reactor Oversight Process and the Oconee Nuclear Station (ONS) annual assessment of safety performance for the period of January 1, 2002 - December 31, 2002. The major topics addressed were: the NRC's assessment program, the results of the ONS assessment, and NRC security activities. Attendees included ONS site management, members of site staff, corporate management and staff, and members of the public and local news media.

This meeting was open to the public. The presentation material used for the discussion is available from the NRC's document system (ADAMS) as accession number ML030980614. ADAMS is accessible from the NRC Web site at *http://www.nrc.gov/reading-rm/adams.html* (the Public Electronic Reading Room).

4OA7 Licensee Identified Violation

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements, which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

- TS 5.5.9 specifies, in part, the required in-service testing (IST) frequency of ASME Code Class 1, 2 and 3 valves and pumps. On February 5, 2003, it was discovered that the licensee had failed to perform multiple quarterly timed stroke test of 1HP-27, 2HP-27, and 3HP-27. However, the valves were time stroked satisfactorily during the following quarter. The circumstances involving this missed surveillance are described in PIP O-03-00626. Additionally, on February 26, 2003, it was discovered that the licensee had failed to have program requirements to acquire quarterly, axial vibration data on the thrust bearings of all five low pressure service water (LPSW) pumps. Subsequently, the vibration data for all five LPSW pumps were acquired satisfactorily. The circumstances involving this missed surveillance are described in PIP O-03-01049. Because the subsequent performance of the missed IST requirements were satisfactory, this violation is of very low safety significance, and is being treated as a non-cited violation.

- TS 3.5.3 condition B, requires LPI pump discharge header crossover isolation valve 2LP-9 to be manually operable (i.e., locally and remotely) while in modes 1, 2, and 3. Contrary to TS 3.5.3, 2 LP-9 was not manually operable locally due to an interference between the newly installed speed handle and a cable tray hanger. As valve 2LP-9 was verified to still be manually operable (remotely) from the Unit 2 control room and its accident function maintained by being automatically powered from two safety busses, the violation was determined to have very low safety significance. This issue is documented in the licensee's corrective action program as PIP 0-02-5220, and is further described on Section 4OA3.2 of this inspection report.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

S. Batson, Mechanical/Civil Engineering Manager
D. Baxter, Engineering Manager
N. Constance, Operations Training Manager
C. Curry, Maintenance Manager
T. Curtis, Reactor & Electrical Systems Manager
D. Covar, Training Instructor
C. Eflin, Requalification Supervisor
W. Foster, Safety Assurance Manager
P. Fowler, Access Services Manager, Duke Power
T. Gillespie, Operations Manager
B. Hamilton, Station Manager
B. Jones, Training Manager
R. Jones, Site Vice President
T. King, Security Manager
L. Nicholson, Regulatory Compliance Manager
R. Repko, Superintendent of Operations
J. Smith, Regulatory Affairs
J. Twiggs, Manager, Radiation Protection
J. Weast, Regulatory Compliance

NRC

L. Reyes, Regional Administrator, Region II
V. McCree, Deputy Director, Division of Reactor Projects, Region II
B. Haag, Chief, Branch 1, Division of Reactor Projects, Region II
C. Carpenter, Chief, Inspection Program Branch, NRR
L. Olshan, Project Manager

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-269,270,287/03-02-02	URI	Licensee did not Reactivate RO/SRO Licensee in Accordance with OMP1012 (Section IR11.2)

Opened and Closed

50-269,270,287/03-02-01	NCV	Failure to Evaluate Combustible Material in the KHU Complex (Section 1R05)

Previous Items Closed

50-287/02-01-00	LER	Moisture Separator Reheater Level Results in Reactor Trip (Section 4OA3.1)
50-270/02-01-00	LER	Technical Specification Valve Manually Inoperable due to Mechanical Interference (Section 4OA3.2)
50-287/01-01-00	LER	Reactor Vessel Head Leakage due to Stress Corrosion Cracks Found in Nine Control Rod Drive Nozzle Penetrations (Section 4OA3.3)
50-270/01-02-00	LER	Reactor Vessel Head Leakage due to Stress Corrosion Cracks Found in Several Control Rod Drive Nozzle Penetrations (Section 4OA3.4)

Items Discussed

None

LIST OF DOCUMENTS REVIEWED

(Section 1R11.2)

OMP 1-12	Maintenance of Licensed Operators, Shift Technical Advisors, and Non-Licensed Operators, Rev 20.
OMP1-12	Attachment B Certification for Assignment/Return to Active Licensed Operator Duties
OTG-04	Attachment 6.5, Rev 13, and Attachment 6.6, Rev 11 LOR Feedback Program
OTG-04	Attachment 6.4, Rev 0 Training Remediation Plan
OTG-12	Oconee Training Center Simulator Configuration Management Guide
OTG-15	Management Observation of Operator Training
OTG-16	Conduct of Simulator Training and Evaluation
OTG-18	JPM Administration
OTG-20	Development, Administration and Security of Examinations Week 3/24/03 Written Exam and Operating Test

(Section 2OS3)

Procedures, Guidance Documents

Procedure 801, Radiation Protection Portable Instrument Data Management, Rev. 0
Procedure 810, Setup and Calibration of Teletector Model 6112B Geiger Counter, Rev. 0
Procedure 812, Calibration of Eberline E-120, Rev. 0

Records

Verification Data of the SCRAM program used for Calibration of the J. L. Shepard Model 89 Shield Calibration Irradiator at the Central Calibration Facility; Serial Number (S/N) 9128, October 22, 2002; and S/N 8129, December 12, 2002
Oconee Nuclear Station, Instrument Usage Needs, Inage and Outage Activities, dated September 9, 2002
Instruments Ready for Shipment Report, as of January 8, 2003
Instrument Status Report - CCF Laboratory, as of January 8, 2003
CCF Instruments by Site Matrix Report
Calibration Required $\leq$ 45 Days Report, as of January 8, 2003

(Section 2PS3)

Procedures, Guidance Documents

Duke Power Company (DPC) Radiation Protection Policy Manual, Radiological Environmental Monitoring Program Policy IV-07, Rev. 1.
DPC Environmental Division, Radiological and Environmental Services (EnRad) Procedure 52, Preparation of Samples for Gamma Analysis, Rev. 2
EnRad Procedure 53, Preparation of Samples for Gross Alpha and Gross Beta Analysis, Rev. 13
EnRad Procedure 54, Preparation and Counting of Samples for Low Level Iodine - 131 Analysis, Rev. 7

EnRad Procedure 62, Preparation of Tritium Samples, Rev. 0
EnRad Procedure106, Calculation and Determination of Lower Limits of Detection for Radiological Laboratory Instrumentation, Rev. 2
EnRad Procedure 109, Initial and Final Review of Data Using the Lab Manager Laboratory Information Management System, Rev. 1
EnRad Procedure 111, Routine Quality Control Using the Count Room Analysis System (CAS)
EnRad Procedure 112, Routine QC on the Tennelec Series 5 Low Background Counting Instruments Using Eclipse Software, Rev. 2
EnRad Procedure113, Routine QC of the Packard 2550 Liquid Scintillation System, Rev. 0
EnRad Procedure 205, Calibration of the Gamma Spectroscopy System Using the CAS, Rev. 2
EnRad Procedure 206, Calibration of the Tennelec Series 5 Low Background Counting Instruments Using Eclipse Software, Rev. 2
EnRad Procedure 315, Operation of the PACKARD 2550 Liquid Scintillation System, Rev. 3

Records

Oconee Nuclear Station, Air Sampler Run-time Reports, January 1, 2002 through December 2002
Certificates of Calibration: 2 Inch Simulated Filter in Falcon Petri Dish, dated January 1, 2002, and 25 milliliter Ion-exchange Resin in Falcon Petri Filled to Top, dated January 1, 2003
Inter-laboratory Cross-Check Program Data, for the 1st 2nd and 3rd Quarters 2002
Quality Control (QC) data for the following DPC EnRad Laboratory Analytical Instrumentation:

- Gamma Spectroscopy Analysis System Detectors 2, 4, 8, January 1, 2002 through December 31, 2002, including background data, Full-Width Half Maximum, Peak Centroid, and selected performance check results
- Beta Counting System Number 4 QC data from December 7, 2002 through January 6, 2003 including alpha and beta efficiency and background checks
- Liquid Scintillation Counting System S/N 428 and S/N 404281 QC May 1, 2002 through June 11, 2002, monthly tritium efficiency data and daily background check data and graphs

Beta Attenuation Report, and Supporting Documents, for Unit 4, November 18, 2002
Gross Alpha/Beta Calibration Verification Worksheet, Unit 4, November 18, 2002
Memo to File: Regarding Problem Identification Process General Office (PIP-G) 03-00014, Need to Improve Guidance for Distillation in Preparation of Liquid Samples, January 23, 2003
Memo to File: Regarding PIP-G 03-00016, Geometry Calibration and Sample Analysis Discrepancies, January 28, 2003
Memo to File: Regarding PIP-G 03-00017, Lower Limit of Detection (LLD) Verification for Oconee Broadleaf Vegetation, January 15, 2003

LIST OF ACRONYMS

AMSAC	-	Mitigation System Actuation Circuitry
AP	-	Abnormal Procedure
ASME	-	American Society of Mechanical Engineers
ATWS	-	Anticipated Transient Without Scram
BWST	-	Borated Water Storage Tanks
CCF	-	Central Calibration Facility
CFR	-	Code of Federal Regulations
CRDM	-	Control Rod Drive Mechanism
DEC	-	Duke Energy Corporation
DPC	-	Duke Power Company
ECCS	-	Emergency Core Cooling System
EFW	-	Emergency Feedwater
EHC	-	Electro-Hydraulic Turbine Control
EnRAD	-	Environmental Radiation
EOP	-	Emergency Operating Procedure
HPI	-	High Pressure Injection
HPSW	-	High Pressure Service Water
IR	-	Inspection Report
IST	-	Inservice Testing
JPMs	-	Job Performance Measures
KHU	-	Keowee Hydro Unit
LER	-	Licensee Event Report
LOCA	-	Loss Of Coolant Accident
LPI	-	Low Pressure Injection
LPSW	-	Low Pressure Service Water
MDEFW	-	Motor Driven Emergency Feedwater
MSRH	-	Moisture Separator Reheater
NCV	-	Non-Cited Violation
NRC	-	Nuclear Regulatory Commission
NRR	-	Nuclear Reactor Regulation
NSD	-	Nuclear System Directive
OMP	-	Operation Management Procedure
ONS	-	Oconee Nuclear Station
OOS	-	Out-of-Service
PIP	-	Problem Investigation Process report
PT	-	Dye-Penetrant Test
PWSCC	-	Primary Water Stress Corrosion Cracking
QC	-	Quality Control
RBS	-	Reactor Building Spray
RCS	-	Reactor Coolant System
REMP	-	Radiological Environmental Monitoring Program
RG	-	Regulatory Guide
RO	-	Reactor Operator
RTP	-	Rated Thermal Power
SDP	-	Significance Determination Process
SRO	-	Senior Reactor Operator
SSC	-	Structure, System and Component

SSF	-	Standby Shutdown Facility
TDEFW-	-	Turbine Driven Emergency Feedwater
TS	-	Technical Specification
URI	-	Unresolved Item